

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
30 October 2003 (30.10.2003)

PCT

(10) International Publication Number  
**WO 2003/089600 A3**

(51) International Patent Classification<sup>7</sup>: **C12N 15/63**,  
15/85, 15/87, 11/00, 11/16, C12Q 1/68

(21) International Application Number:  
PCT/US2003/011921

(22) International Filing Date: 16 April 2003 (16.04.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
10/123,435 16 April 2002 (16.04.2002) US

(71) Applicant (for all designated States except US): **THE REGENTS OF THE UNIVERSITY OF MICHIGAN** [US/US]; 3003 South State Street, 2071 Wolverine Tower, Ann Arbor, MI 48109-8202 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **UHLER, Michael, D.** [US/US]; 1215 Morehead Court, Ann Arbor, MI 48103 (US).

(74) Agents: **CARROLL, Peter, G.** et al.; Medlen & Carroll, LLP, Suite 350, 101 Howard Street, San Francisco, CA 94105 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
8 July 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SURFACE TRANSFECTION AND EXPRESSION PROCEDURE

(57) Abstract: The present invention relates to a method of transfecting cells comprising applying cells directly onto nucleic acids which are immobilized in transfection complexes on a surface and which transfect the cells. Preferably, the nucleic acids are immobilized in an array. In another aspect of the present invention, the method further includes expression of the nucleic acids in the transfected cells. In yet another aspect of the present invention, the method further comprises detecting the expression of the nucleic acids in the transfected cells.



**WO 2003/089600 A3**

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/11921

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12N 15/63, 15/85, 15/87, 11/00, 11/16; C12Q 1/68  
US CL : 435/455, 320.1, 6, 174

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/455, 320.1, 6, 174

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0006664 A1 (SABATINI, D.M.) 17 January 2002, pages 1-3, 11 and 14.	1-10, 13-14, 16-18
---		-----
Y		11-12, 15
Y	US 5,736,392 A (HAWLEY-NELSON et al) 07 April 1998, columns 3-5, particularly col. 8, lines 7-17.	11-12 and 15
X, P	US 6,544,790 B1 (SABATINI, D.M.) 08 April 2003, columns 1-6.	1-10, 13-14
---		-----
Y, P		11-13 and 15

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

21 January 2004 (21.01.2004)

Date of mailing of the international search report

01 JUN 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703)305-3230

Authorized officer

Quang Nguyen, Ph.D.

Telephone No. (703) 308-0196

# INTERNATIONAL SEARCH REPORT

PCT/US03/11921

## **Continuation of B. FIELDS SEARCHED Item 3:**

APS, DIALOG, MEDLINE, EMBASE, BIOSIS

Search terms: reverse transfection, immobilized, affixed, deposited, spotted, DNA, nucleic acid, array, microarray, surface, plate, slide, reporter, transcriptional regulatory.